

## CLAIMS

1. Device for converting an AC voltage from the mains electricity supply into a DC voltage of predetermined level

5 (and waveform), comprising:

- a rectifier circuit for connecting to the mains electricity supply;

- a switching circuit connected to the rectifier circuit;

10 - a main transformer connected to the switching circuit; and

- an auxiliary transformer which is connected to the switching circuit and the secondary winding of which is coupled to the secondary winding of the main transformer such  
15 that the current through the switching circuit and the main transformer is limited to a predetermined value.

2. Device as claimed in claim 1, wherein a filter circuit is connected between the rectifier circuit and the switching circuit.

20 3. Device as claimed in claim 2, wherein the filter circuit comprises a number of diodes.

4. Device as claimed in claim 2 or 3, wherein the filter circuit comprises at least one capacitor and one self-induction.

25 5. Device as claimed in any of the foregoing claims, wherein the switching circuit comprises a power transistor in common-base configuration.

6. Device as claimed in any of the foregoing claims, wherein the switching circuit comprises a DIAC.

30 7. Device as claimed in either of the claims 5 or 6, wherein the auxiliary transformer is connected to the collector or emitter of the power transistor.

8. Device as claimed in any of the foregoing claims, wherein a diode is connected between the connecting terminals of the secondary windings of the auxiliary transistor.

9. Device as claimed in any of the foregoing claims,  
5 wherein a resistor is connected between the base and the collector or emitter of the power transistor.

10. Device as claimed in any of the claims 5-9, wherein a resistor with temperature-dependent value is connected between the base of the power transistor on the one  
10 hand and the collector or emitter on the other.

11. Method for operating a device as claimed in one or more of the foregoing claims.

12. Device as claimed in any of the claims 5-10, wherein the power transistor is a bipolar transistor.